

To: \_\_\_\_\_

# Approval Sheet for Product Specification

## 请 承 认 书

PRODUCT NAME	SPEAKER
CUSTOMER PART NO	
QINGLONG PART NO	SP-3650J
DRAWING NO	940753650
Issue Date	2019/4/27

APPROVAL SEAL :				
DISCUSS		<i>RESOLUTION</i>		
QA	PURCHASE	ISSUED BY	CHECKED BY	APPROVED BY

**SUPPLIER: CHANGZHOU QINGLONG ELECTRONIC COMPONENTS CO.,LTD**

**TEL(电 话): 86-519-85500395 85500651**

**FAX(传 真): 86-519-85500519**

**<http://www.qinlon.com>**

SIGNATURE	Issued by	Checked by	Approved by
	R&D	HeBinbin	Lu Tianming

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		ISSUED DATE		2019/4/27
		MODEL NO.		SP-3650J
<b>1.REVISION</b>				
Revision	Date	Description/ Reason	DR.	Page
V0	2011-09-15	First issue	Gu Haiping	/
V1.1	2011-11-13	Force of spring contacts (chapter 2.9 )	Gu Haiping	2&5
V2.0	2012-10-17	Add draw NO.	He Binbin	Cover
	2012-10-17	S.P.L / Frequency Curve	He Binbin	2&4&5
V2.1	2013-10-5	ADD BLUE LAB	He Binbin	5
V2.2	2014-3-28	RING THICKNESS CHANGE	He Binbin	2&5
V2.3	2016-8-4	Resonance Frequency change Diaphragm curve changes	He Binbin	2&5
V3.0	2019-4-27	New wide spring	He Binbin	5

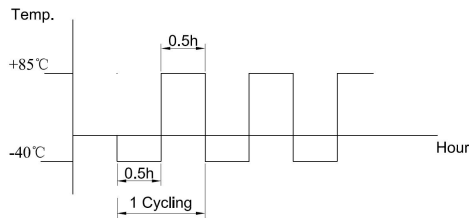
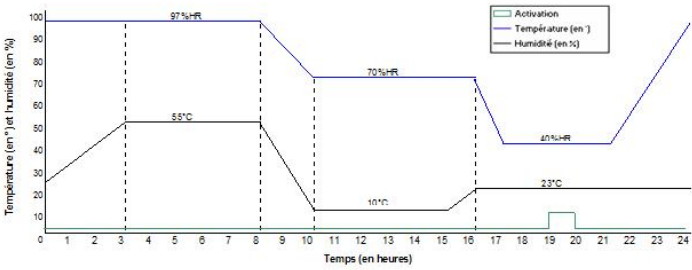
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<b>2. Electrical and Mechanical Characteristics</b>			
2.1	TYPE	$\Phi 36 \times 5.4 \pm 0.2$ mm	
2.2	Nominal input Power	<b>0.5 W</b>	
2.3	Impedance	<b>50 <math>\Omega</math> <math>\pm</math> 15%</b> at 1 Vrms 2 K Hz input	
2.4	Resonance Frequency	<b>465 Hz <math>\pm</math> 7.5 %</b> 1V	
2.5	Sensitivity (S.P.L)	<b>90 dB <math>\pm</math> 3 dB</b> at 1.0KHz 0.1W/0.1m With 1000cc BOX.	
2.6	Frequency Range	<b>200 Hz ~ 20 KHz</b>	
2.7	Distortion	<b>5% max</b> at <b>1K Hz 0.1W</b>	
2.8	Max. Input power	<b>1.0W</b> Must be normal at a white noise ( <b>1.0W</b> ) for one minute.	
2.9	Force of spring contacts	$\geq 0.6N$ force of each spring contact under working position	
2.10	Magnet (ND-FE-B)	<b><math>\Phi 12.5 \times 1.35</math></b> mm	
2.11	Net Weight	<b>6 <math>\pm</math> 0.2</b> Gram	
2.12	Appearance	Should not exist any kind of obstacle to be harmful to Normal operation not any remarkable damages, cracks, rust and Distortions which may cause malfunctions.	
2.13	Operation Test	Must be normal at a program source ( <b>0.5 W</b> )	
2.13	Buzz ,Rattle etc.	Should not be audible buzz and rattle at ( <b>5V</b> ) RMS sine wave Between ( 100 Hz to <b>20 KHz</b> )	
2.14	Range of operation temperature	-40 ~ +85 $^{\circ}C$	
2.15	Range of storage temperature	-40 ~ +95 $^{\circ}C$	

\* **Standard state:**

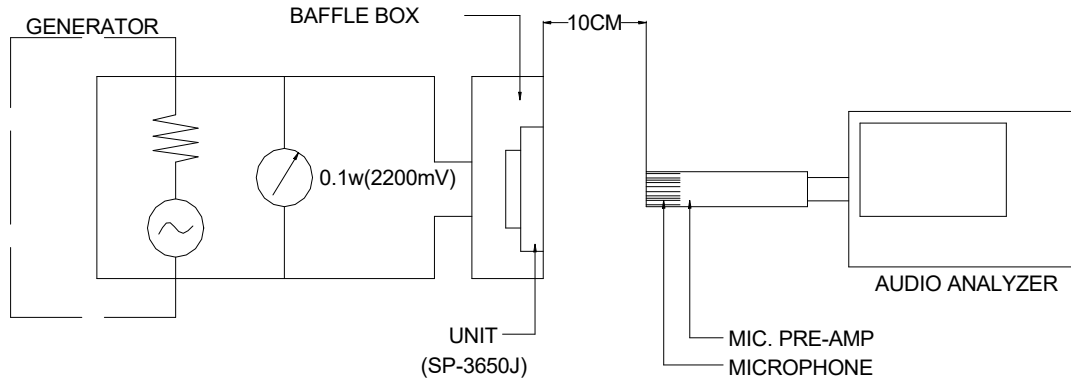
Ordinary Temp.( 15 ~35 $^{\circ}C$  ), Humidity ( 25~85% RH), Air pressure ( 860 ~1060 hPa).

In case of doubtful judgment, the test is re-performed under basic state.

\* **Basic state:** Temp.(22 $\pm$ 3 $^{\circ}C$ ), Humidity ( 60 ~70 % RH ), Air pressure ( 860 ~ 1060 hPa).

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<b>3. Reliability Test:</b>				
3.1	High Temperature Test	High temperature durability acc. to IEC 60068 part2-2 Temperature: 95±3°C Duration: 96 Hours		
3.2	Low Temperature Test	Low temperature durability acc. to IEC 60068 part 2-1 Temperature: -40 ±3°C Duration: 96 Hours		
3.3	Temperature Cycling with EL. load.	Temperature: -40°C to +85°C Transfer time from lower to upper temperature:<10s Duration: 320H, with el.load (Rated Power 0.5W) . The cycling as follow: 		
3.4	Vibration Test	Signal: sine wave. Duration: 72 h (24 h each of 3 axis) Frequency sweep : 1 octave/min Amplitude of deflection: 0.75mm constant in range 10 Hz to 55 Hz Amplitude of acceleration: 10g constant in range 55 Hz to 2000Hz Reference:IEC60068-2-6		
3.5	Humidity Test	Temperature: 10°C -30°C -+55°C Humidity: 40%-70%-97% RH Duration: 240Hours (10 cycles of 24H) with el.load: Rated Power 0.5W 		
3.6	Drop Test	Drop height 1000 mm Dropping surface Concrete Direction of drop 2 x magnet system pointing down 2 x magnet system pointing to side Performance Free fall Reference IEC60068-2-6		

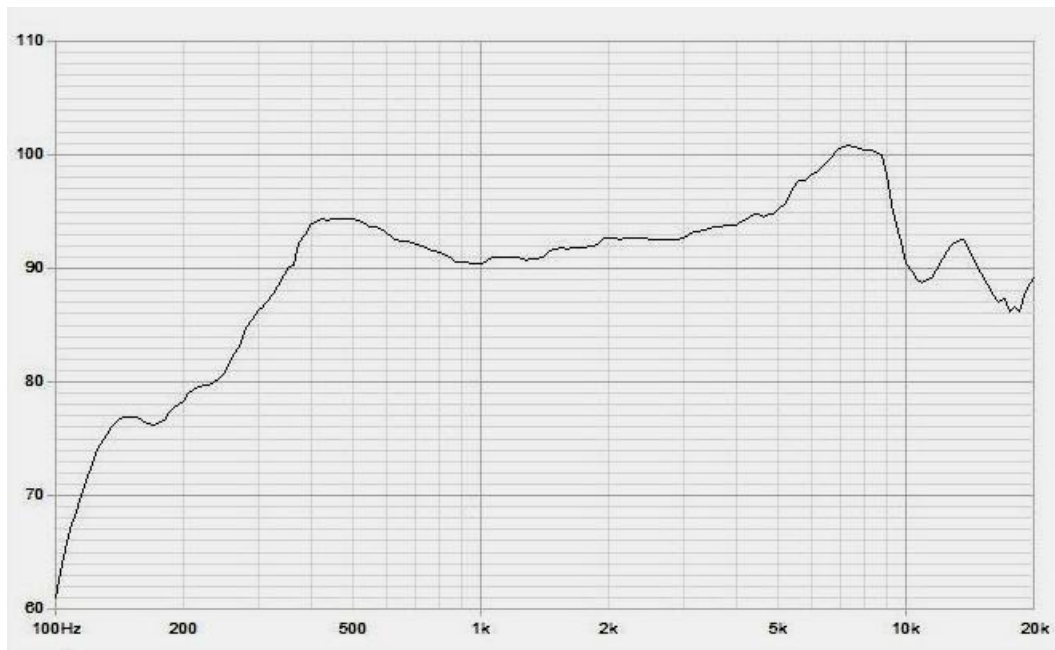
**4. MEASURING CIRCUIT (SPEAKER MODE)**



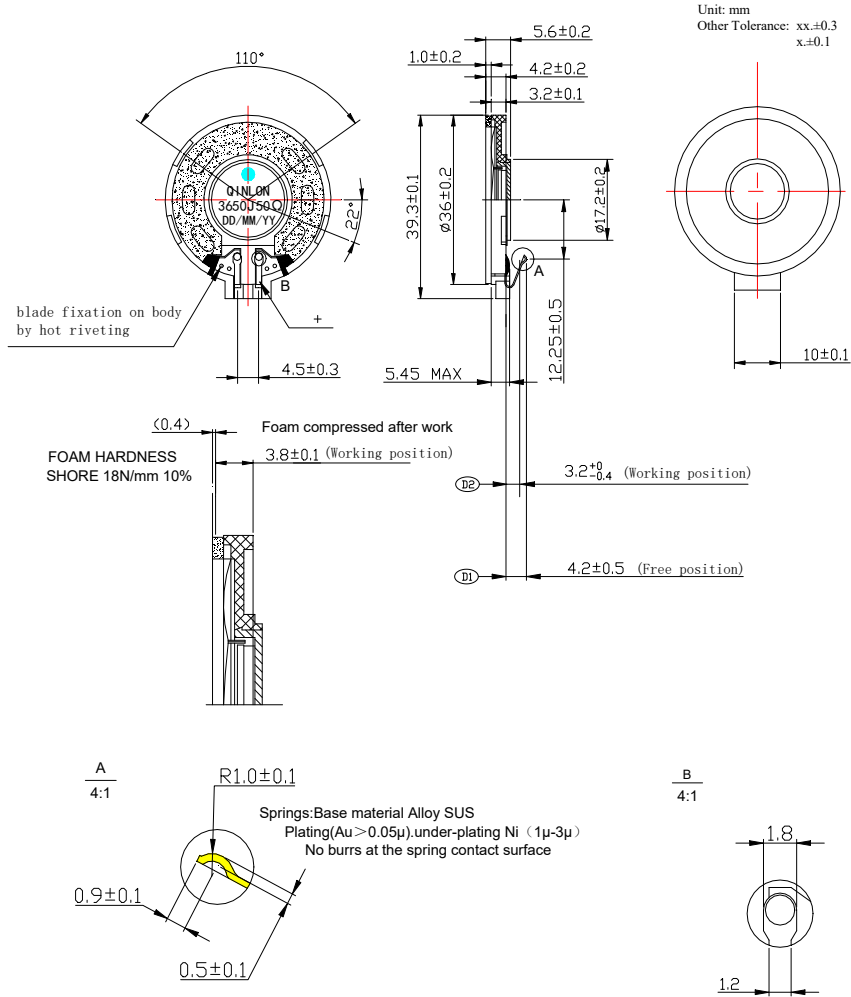
Testing Conditions.

- Anechoic Chamber
- Test Signal Input Power : 0.1W (2.2Vrms)
- Measured distance : 0.1m / on the Axis of speaker
- Measuring equipment :6160S
- Test Environment : 25°C ± 5°C, R.H.90% ± 5%

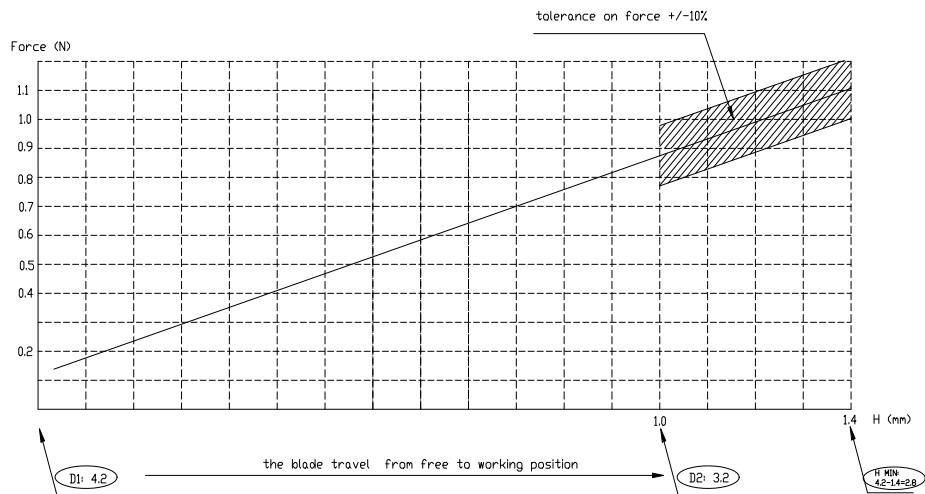
**5. FREQUENCY RESPONSE CURVE(SPEAKER MODE)**



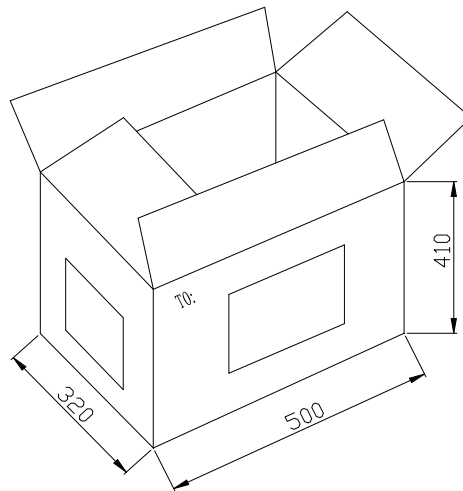
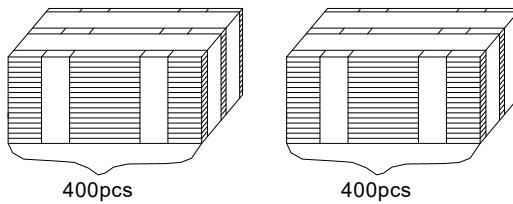
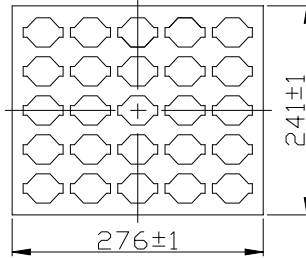
**6.1 DIMENSION**



**6.2 Travel force diagram of the Spring Pin**



**7.PACKING METHOD**



Remark:

25 pcs per tray  
16 trays for unit  
2 unit per carton  
Total: 800pcs per box  
Size:  $50 \times 32 \times 41$  cm